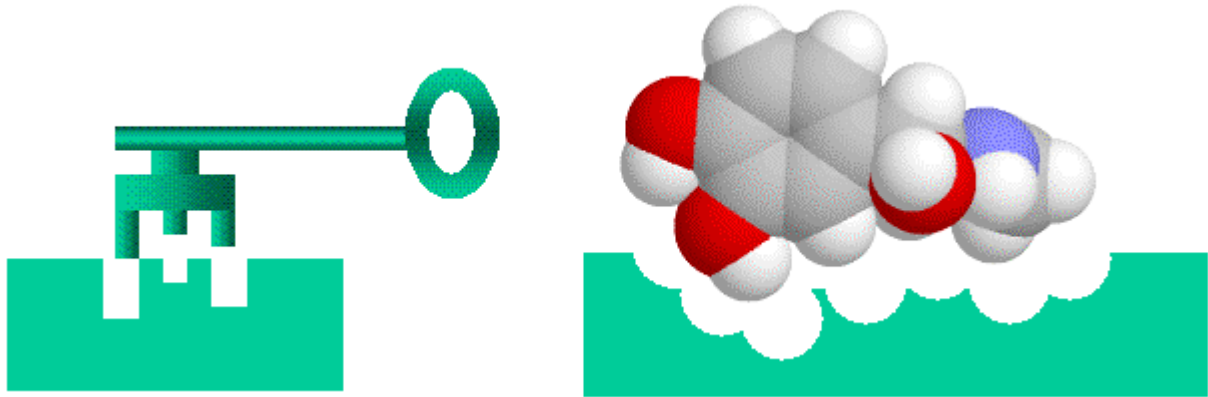


Enzymes

Enzymes are protein catalysts that promote chemical reactions on the compounds that bind to them (their substrates). As enzymes bind strongly only to a very few chemicals out of the multitudes present in their environment, they are considered to be highly specific. They behave by two models

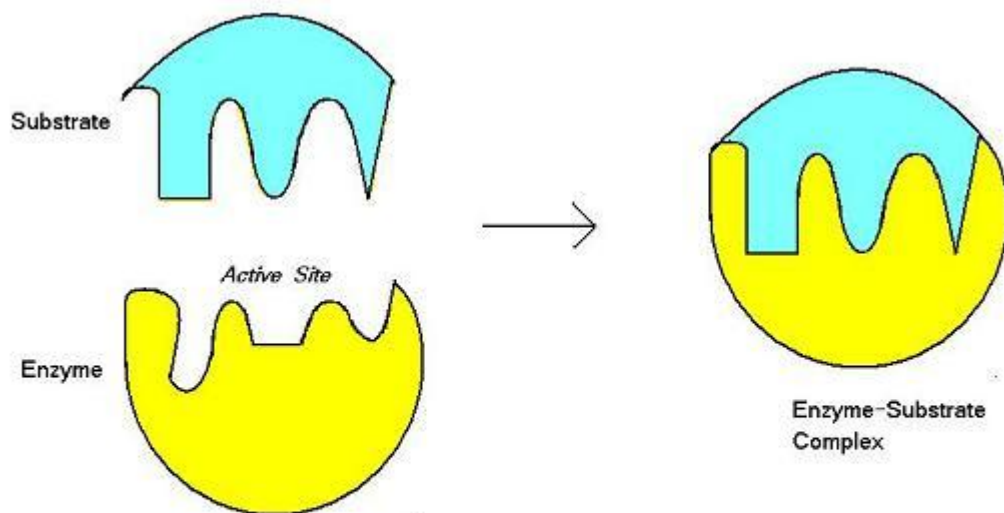
Model – Lock and key

Active site fits the substrate



Model - Induced Fit

Active site made to fit



Induced-fit Model. - The enzyme active site forms a complementary shape to the substrate after binding.

Enzymes' active site changes on binding

Control of enzymes

Temperature: Proteins change shape as temperatures change. Because so much of an enzyme's activity is based on its shape, temperature changes can mess up the process and the enzyme won't work.

pH Levels: In the same way temperature changes the shape of proteins, the acidity of the environment does the same thing. Remember that the pH is a measure of acidity? An increased acidity near an enzyme can cause its shape to change. The enzyme could unravel and become totally ineffective.



NORMAL
ENZYME
WORKING

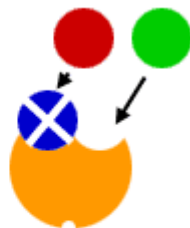


ENZYME WITH
ACTIVATOR
HAS IMPROVED
ABILITIES

Activators: Sometimes you need an enzyme to work faster and your body creates an activator. Other times you might eat something that acts as an activator. Activators make enzymes work harder and faster. If you're running in a race and you need more energy, get those enzymes to work!



INHIBITOR
BONDS TO
ENZYME



SUBSTRATE
CANNOT
BOND TO
ACTIVE SITE

Inhibitors: These are the opposite of activators. Inhibitors either slow down or stop the activity of an enzyme. They often bond to the protein, changing the overall shape of the enzyme. Remember, when the shape changes, the enzyme will not work the same way.